National Dairy Council
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Dr. Joshua Lederberg
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Dear Dr. Lederberg:

A staff member from the Dairy Council of California recently had the pleasure of hearing your remarks at the Nutrition Symposium held at the University of California Medical Center, January 7-12. This individual was particularly disturbed by your statements to the effect that a large proportion of the population is intolerant to lactose and that most Negroes and Orientals cannot tolerate milk.

I am sure that you appreciate that such statements can be very misleading and unfortunate in view of the literature in this area. There are two relatively recent reports illustrating this point. The reports I refer to appeared in Science 160:83, 1968, by Huang and Bayless, and other report which appeared in Nature 216:1244, 1967 by Davis and Bolin. Both of these reports have unfortunately received wide publicity.

I do not place much validity on either report because both groups of investigators based their conclusions on the lactose tolerance test. The report by Huang and Bayless even cites subjective opinion as evidenced by the following: "Fourteen of the 20 Orientals stated....."

The reason for my criticism concerning the lactose tolerance test stems from the fact that an unphysiological amount of lactose is administered; Huang and Bayless used 50 grams whereas Davis and Bolin used 80 grams. In order to consume this amount of lactose in milk, an individual would have to consume over a quart of milk at one time. Such a practice is certainly not recommended, and I doubt seriously whether many individuals could accomplish such a feat.

To the best of my knowledge, there are no accurate data on the incidence of lactose intolerance. The following studies, however, provide an indication of the suspected degree of incidence.

Dr. P. Custrecasas et al (Lancet 1:14, 1965) reported that "55% of adults are intolerant to lactose..." Dr. J. E. Struthers (Medical World News, February 11, 1966) believes that "30% of the adult population may have a milk intolerance because an inherited or acquired deficiency of lactase hampers their ability to absorb lactose." Dr. F. Kern, Jr. and Dr. J.E.Struthers, Jr. (JAMA 195:927, March, 1966) said that "isolated deficiency of lactase

occurs occasionally in infants, inherited as an autosomal trait. Isolated lactase deficiency in the presence of morphologically normal mucosa is common (16% and 55%) in otherwise healthy adults and has been described in the presence of a large number of unrelated diseases." Dr. A. Littman (JAMA 195:954, March, 1966) indicated that "it is possible to infer from fragmentary data that lactase deficit occurs more frequently with advancing age - the incidence rising from almost nil at birth to 31% at the age of patients in a Veterans Hospital." (Hines, V.A. Hospital, Illinois). Dr. S. H. Danovitch in a March, 1966 article in General Practitioner,(p. 117), said that "enzyme assays, done at random on a general hospital population, suggest that as many as 10% of people may have the enzyme deficiency. This has also been borne out by random administration of lactose tolerance tests. In populations with a variety of nonspecific gastrointestinal symptoms, generally classified as functional in nature, several groups have demonstrated a high incidence (approaching 40% in some series) of abnormal lactose tolerance tests and assayable enzyme deficiencies. Among patients with a history of milk intolerance, the incidence of abnormal lactose tolerance tests approaches 50-60% and, as noted previously, the enzyme assays correlate well with these findings." Dr. J. D. Welsh et al (Archives of Internal Medicine 117:495, April, 1966) did not believe that as high as 55% of adults were intolerant to lactose, but did not indicate what he thought was a sound indication of the prevalence of this condition within the United States. Dr. G. C. Cooke and Dr. S. K. Kajubi (Lancet 1:725, April, 1966) showed that isolated lactase deficiency was common in Baganda children and adults and in neighboring Bantu tribes in Africa. This work indicated that there may be a race susceptibility to lactose intolerance. Lactose intolerance may be higher in postgastrectomy patients (Dr. P. D.Robertson, Archives of Internal Medicine 117:764, June 1966) and in certain races such as the Negro (Dr. T. M. Bayless and Dr. N. S. Rosensweig, JAMA 197:968, September, 1966). Bayless and Rosensweig in their summary indicate that "an incidence survey of milk intolerance and lactase deficiency was conducted in 40 healthy nonpatient volunteers. There were 20 Negroes and 20 whites. Nineteen of the 20 Negro subjects and 2 of the 20 white subjects gave a history of milk intolerance. The majority had noted the onset during or after adolescence. Lactose intolerance occurred in 20 of the 21 milk intolerant subjects; 18 of the 20 were Negro. There was also a prominent racial difference in the incidence of low levels of intestinal lactase activity. Deficient levels were observed in 70% of the 20 Negroes in contrast to only 1 of 20 whites."

As noted, there are no reliable studies indicating the actual prevalence of this condition. Because of this, National Dairy Council initiated "A Study of the Disaccharide (Milk) Intolerance Syndrome In Infants" with Dr. L. Emmett Holt, Jr., New York University School of Medicine. Dr. Holt is using a highly sensitive and reliable technique - C^{13} labeled lactose - together with intestinal biopsies to assay the level of lactase in infants suspected of having an intolerance to lactose. As of this date, Dr. Holt does not have published data from this project.

It is my belief that this is a rare condition and must be viewed in the context of a much greater problem, that is, the malnutrition that disrupts the lives of perhaps two-thirds of the world population. Viewed in this context, the few individuals who may be intolerant to lactose is insignificant, in my opinion, when one considers the nutritional benefits realized by millions. It would indeed be a very grave error if the publicity given to the condition of lactose intolerance affects in any way the distribution of milk in the United States or in our foreign feeding programs. I think it would be a particular mistake when viewed in light of the reports that have appeared in the popular press.

I appreciate the opportunity of presenting my views to you.

Sincerely yours,

M. F. Brink

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Director of Nutrition Research

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